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PRODUCTION manager

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Production software PSImetals eliminates bottlenecks at Usiminas steel plants

No Modernization without Digitalization

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EDITORIAL

Dear Readers,

Mankind has been processing metals since the Iron Age. In the last 50 years, metals production has transformed in processes and capacities. However, the challenge of producers is ahead of us: how to efficiently produce and achieve decarbonization targets.

The complexities we see in the industry are due to trying to overcome these challenges. Today, sustainable production and digitalization are key elements that are needed to solve these challenges. With increasing digitalization, we are more ambitious in improving production efficiency. It uses data to create better transparency, quality and value for customers. In decarbonization, manufacturers have to adapt their production processes due to changing regulatory, environmental and customer demands. Decarbonization is not to be achieved in isolation.

According to World Steel Association, 20 percent of emission savings expected in the steel industry can be achieved by optimizing the existing assets: an area where digitali-



zation can play a significant role. Your approach towards these two key elements is crucial. To overlook them is to miss your growth potentials and CSR targets.

In our cover story, you will read how digitalization is offering Usiminas clear vision into what they want to achieve, the speed in achieving them, and how they are using data to create digital values for their customers. To them, these two key elements

cut across all business investments.

The story of metals has not ended. In decades to come, it will continue to be told through the perspectives of producers who take a bold step towards integrating digitalization and decarbonization into the DNA of their business strategy. Let's create this history together.

Enjoy the reading.

Warm regards,
Thomas Quinet
Managing Director PSI Metals

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Production software PSImetals eliminates bottlenecks at Usiminas steel plants

No Modernization without Digitalization

For more than 2 decades, Usiminas continues to rely on PSImetals in order to optimize their production. In their latest software modernization projects, the leading producer of flat steel in Brazil leveraged comprehensive PSImetals 5.23 software solution to efficiently optimize their supply chain management processes, meet increasing customer demands and achieve their business targets.

In May 2020, Usiminas began the project to implement PSImetals Flow & Order Planning and Sales & Operations Planning (S&OP) for their two plants in Cubatão and Ipatinga. Before the installation, Usiminas used obsolete solution to create both the sales & operations and flow planning. However, this solution contained multiple ‘macros’ developed using Visual Basic which were difficult to use, maintain and modify. The solution was even more time consuming, taking a week to generate an elaborate monthly plan. By the time the plan was ready, most of the conditions had already changed, making it outdated.

Furthermore, Usiminas needed to simulate the sales plans in the two plant sites in order to ensure collaborative management and control of the monthly sales and operations planning processes. Since the old solution could not integrate the plans produced in the two sites simultaneously, processing the combined demand between these sites was not possible.

Usiminas finally decided to implement PSImetals 5.23 as it helped them achieve very important business objectives, like reducing the time required to create the sales and operations plan and improving their delivery performance to their customers.

Solution implementation done virtually due to Covid-19 restrictions

PSImetals implementation began during the Covid-19 pandemic. Lockdowns were already in place and movements were restricted. Due to its importance in the supply chain management of Usiminas, the project could not be postponed. Therefore, to ensure the health and safety of all the team members, the entire implementation was carried out virtually. With this online implementation, the PSI Metals project team moved in full swing to support Usiminas project team daily with meetings and calls. After two years, the go live was successful and everyone was safe.

Success after several trials of other solutions.

Interview with Alejandro Laiño, Supply Chain Executive Director, Usiminas

Mr. Laiño, it has been 25 years of partnership with many successful projects being done. How has the partnership between Usiminas and PSI Metals been?

Mr Laino: It has been an incredibly successful long-term cooperation, starting back in the mid-90s. Initially, the partnership was dedicated to structuring the material requirement planning, implementation of a production planning system and daily schedule of the main equipment of our two production plants while preserving local and individual characteristics. In 2014, we introduced the optimization view in the daily schedule with two pilot projects in Cubatão and Ipatinga's Hot Strip Mills. This allowed us to open doors to more efficient processes, bringing even closer customer service variables to operational variables for better decision-making. In 2020, we incorporated the PSImetals Casthouse Scheduler, integrating the production processes between slab production and hot strip mill.

The most recent implementation of PSImetals Planning covers the operations of both Cubatão and Ipatinga sites. With Flow and Order Planning, for each of the production plants, we are able to create and simulate multiple scenarios, reduce time required to produce a plan, optimize inventory control, observe process constraints and business objectives, which have resulted in better customer delivery performance.



Alejandro Laiño
Supply Chain Executive Director at Usiminas.

What are some of the values created for the Sales & Operations Planning, which now runs in your plant for almost a year?

Mr. Laiño: Following the installation, Usiminas is able to reduce the time required to produce a plan for sales & operations from weeks to just three minutes. We can now make decisions within a short time thereby improving the communication between our customers and the Usiminas' operational areas.

The solution has improved our customer delivery performance, leading to frequent updates on the delivery forecast. Now, we can make informed decisions on which of the sites would be best to produce in cases where the demand could be satisfied from both sites. We also can efficiently plan material transfers between Ipatinga and Cubatão. These benefits have allowed us to eliminate some of the bottlenecks we had before the implementation.

How is PSI Metals supporting you in your mission to continuously search for excellence in flat steel production and commercialization, achieving world-class performance indexes and practices?

Mr. Laiño: PSI strongly supports us in search for excellence by providing us with highly modernized software solutions for planning and scheduling our operations. We consistently achieve a high on-time delivery performance, and we optimize our inventories to attain higher line productivity. These trade-off management are important features in the PSI's software solutions. These are key milestones we have achieved through digitalization.

You have just mentioned digitalization. How are you navigating this journey?

Mr. Laiño: Digitalization for us is essential and as such part of our business strategy. We believe that the protagonists of the steel industry will be producers who are able



Campaign optimization with PSImetals Flow & Order Planning.

to adapt to the dynamics of the industry. Usiminas has the policy of fulfilling demands of our customers and meeting them in good time. For this, we need quick, efficient and optimized set up. Digitalization is our main solution to adapting to this changing dynamics. We ensure that digitalization is integrated in all our business stages. Here we see PSI Metals as a strong partner that will support us in achieving this goal.

What are the next steps you are considering in your digital transformation journey?

Mr. Laiño: The pace of digitalization at Usiminas is really picking up. I am happy with the partnership with PSI Metals since you have many solutions to help us achieve our digitalization targets. We would like to digitalize all of our supply chain processes with all the modern features that PSI Metals software solution has. In order to optimize our solution in the future, we could also consider implementing the PSI Metals Plate Combiner, which is very important for our production. I also like the PSI Metals Virtual Factory and quality management solutions, which in my opinion are important in advancing the production capabilities at Usiminas.

Decarbonization is a must to our industry, and digitalization is a catalyzer.

Flash interview with Alejandro Wagner, Managing Director at the organization Alacero, that brings steel producers in LATAM together to foster discussions and forums on how to promote sustainable steel production in the region. In our chat, Mr. Wagner shares his thoughts on how digital transformation and decarbonization are shaping the steel industry in LATAM.

Mr. Wagner, digitalization and decarbonization are key trends in the steel industry. How have they impacted the steelmaking process in the LATAM market?

Mr. Wagner: Both are big processes and changes that are transforming our industry. This is happening worldwide, at different pace, according to the conditions and possibilities of each region and/or company. So, I would definitely say that decarbonization is a must to our industry, and digitalization is a catalyzer. In the case of Latin America, this is an opportunity, more than ever, to close gaps and accelerate in relation to developed regions. In the end, this will result in sustainable steelmaking.

Why do you think that some steel producers place digitalization in the least of their priorities when thinking about decarbonization?

Mr. Wagner: Decarbonization is a huge challenge as well as an objective that we have to achieve. In that regard, digitalization is an enabler whose prominence will even be more visible in our industry. Now, we are talking about AI more than ever so I truly believe that digitalization will be part of decarbonization process and even in the creation of green hydrogen. Digitalization cuts across the entire steel production process like safety and health, which are big challenges of our industry.



Alejandro Wagner, Managing Director at Alacero.

Mr. Laiño and Mr. Wagner, thank you very much for this very insightful conversation. We are happy for these collaborations and that our solution could support you in your business. We look forward to even stronger partnerships and collaborations in the future. 🌐

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ERP System Delivers Results at the Touch of a Button

When you grow, you need new clothes. Metaphorically speaking, this applied to INDAG Maschinenbau's IT—especially to its outdated ERP system. The new solution is designed to gradually increase the degree of digitization and lay the foundation for further expansion.

Peanut butter with chocolate chips, shampoos, hot melt adhesives: as different as these products may seem at first glance, their manufacturing process is very similar. After all, this primarily requires the continuous (inline) mixing of different media, e.g. of a liquid with solid components. During the mixing process, manufacturers must also ensure the correct viscosity, temperature and pressure.

INDAG Maschinenbau GmbH (INDAG) has been developing and producing corresponding machines, so-called inline mixers, for more than 70 years and thus has always supplied a niche market. In addition to the food industry, customers include the cosmetics and pharmaceutical industries as well as com-

panies in the chemical, plastics and environmental sectors.

INDAG exports its equipment to more than 75 countries, with the demand increasing every month. "We currently employ around 50 people at our site in Borsfleth in Schleswig-Holstein and—like many other medium-sized companies—we are desperately looking for qualified specialists," says Managing Director Wilko Willuhn, who took over the company management from his father and founder, Martin Willuhn, over 30 years ago.

Growth needs digitalization

In order to be able to meet the requirements of the growing order volume, the specialist for continuous mixing is also turning the spot-

light on IT, in addition to hiring additional employees. "After eleven years, we had simply outgrown our old ERP system," Wilko Willuhn describes the initial situation. "It did not cover all processes, which meant that we also worked with Excel & Co. here and there."

Obtaining reliable figures quickly for corporate management became increasingly difficult in view of the growing number of orders: 110 orders are currently in production on average. The managing director: "It was clear to us that we needed a higher level of digitization and an ERP system that would also enable further expansion in perspective." Out of more than 30 ERP solutions, three finally made it to the detailed review and final selection. Approxi-



Manufacturing at the crane at INDAG Maschinenbau.



Employees from the testing department.

mately 16 of the 20 later users were involved in the evaluation phase and decided in favor of the ERP system PSIpenta by means of a point allocation system.

Reliable processing of high data volumes

The system is designed for mechanical and plant engineering and maps almost all processes of different production typologies in the standard—from the preparation and acceptance of quotations to purchasing and production to the issuing of delivery bills and invoicing. This is also relevant for INDAG, because the portfolio does not only include standard machines. The company also develops and manufactures special machines on request.

Wilko Willuhn: “Every mixer we manufacture is a central component for the business of the respective company and is created in very close cooperation with the customer. It is not always possible to implement the requirements with a standard. This is incredibly varied, not least because of the different industries we serve,

and a point that still excites and fascinates me after so many years.”


PSIpenta also has scored points here in the management of the more than 20000 parts, each of which is assigned up to 200 material characteristics. For individual processes, the standard functions of the ERP system can also be expanded with individually programmable scripts. For INDAG, for example, the main role is played by a script that automatically translates all material characteristics of all parts from German into English in all forms, lists and reports.

Precise planning thanks to high data transparency

The specialist for inline mixers has not yet digitalized all processes and integrated them into the system. But INDAG is already benefiting from its new ERP solution. Wilko Willuhn: “From the managing director’s perspective, this becomes particularly clear in our weekly project meetings, in which 16 employees from all departments are involved. Today, literally at the push of a button, we re-

ceive up-to-date key company figures, which we can use to plan and manage much more precisely.” This saves time, ensures a high level of data transparency and provides reliable decision-making support. The mechanical engineering company would like to build on this and is already working on the integration of the MES module Shop Floor Data Collection. The implementation of the PSIpenta control center and a module for capacity planning are also at the top of the to-do list.

Digital foundation for the future

Step by step, INDAG Maschinenbau is digitizing all corporate processes with the help of its ERP MES industry solution and replacing inefficient, paper-based processes. In this way, it is further expanding its competitiveness and laying the digital foundation for further growth. 

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WMS and ERP Linked Closely

With the ERP system PSIpenta and the Warehouse Management System PSIWms, the mechanical engineering company Koenig & Bauer Kammann works in a conflict-free, continuous IT infrastructure. The close networking of the two software systems reduces interfaces and, in addition to increasing efficiency, opens up additional optimization potential in intralogistics processes.

Efficient warehouse processes and demand-oriented production supply and control are key success factors for industrial companies. Enablers for this are modern IT systems. With their range of functions, they cover the requirements of warehouse management and process control. Currently, there is an increasing trend towards integration and networking of the functional system levels. Users are increasingly opting for conflict-free networking in which the systems work together in an integrative manner. The uniform IT infrastructure extends from the overlaying Enterprise Resource Planning (ERP) systems to the level of the horizontally extended Warehouse Management Systems (WMS) and into the

control of automation systems and processes.

Problem-free connection of automation systems

With a corresponding expectation, Koenig & Bauer Kammann GmbH (KBK) decided to implement the Warehouse Management System PSIWms. Since 2007, the ERP system PSIpenta has already covered the requirements at KBK as a platform for intelligent production processes, including order management, purchasing and sales, resource management and production planning.

With the relocation to the new plant location in Löhne, the internal production logistics should be op-

timized and the warehouse management and coordinated process control should be supported by the use of a modern WMS. "We were looking for a WMS that already covered our requirements and options for future developments of our intralogistics in the system standard," explains Gerhard Drews, IT manager at KBK. "Thanks to PSIpenta, we already made good experiences with PSI software. PSIWms was also able to convince with a standard interface to PSIpenta and extensive functional system standards for a problem-free, reliable connection of our automation systems."

13 000 different inventory items

Koenig & Bauer Kammann is one of the leading manufacturers of state-of-the-art decorating machines for the glass, plastics and packaging industries. With subsidiaries in the USA and China as well as factory representatives and sales partners worldwide, the company plans, designs and assembles its special machines.

In Löhne, the mechanical engineering company constructed a building complex with 8000 square meters of hall space and 3000 square meters of office space. To optimally supply production with the required components, more than 2100 square meters of storage space were set up directly next to the assembly hall. "Our logis-



A view of the service and upgrade hall at Koenig & Bauer Kammann.

tics center holds 13000 different inventory items,” explains Drews. “As needed, the service of the assembly stations with articles also takes place in cross docking directly from the goods receipt.”

On-time production supply with PSiWms

In the narrow-aisle warehouse, pallet rack, cable rack and cantilever warehouse, as well as in 18 shuttle tray warehouses with a total of around 15000 storage compartments, PSiWms manages around 22600 storage locations in the logistics center. With PSiPenta as the overlaying software system for production planning and control and PSiWms for coordinated process control in warehousing, order picking and production supply, Koenig & Bauer Kammann has a conflict-free holistic IT infrastructure from material receiving through production to shipping. “The hardware in the warehouse comes from Jungheinrich,” says Drews. “Everything else, warehouse management and coordinated process control of the systems, as well as automation for secure and on-time production supply, is handled by PSiWms.”

Goods receipt posting in PSiPenta

On average, the employees in the KBK logistics center receive 2300 goods receipt items per month. PSiWms thus offers capacity reserves in WMS performance for twice this volume. The goods receipt posting takes place in PSiPenta. The warehouse management system receives corresponding advice data from the ERP system. With the master data stored in



PSiWms manages around 22600 storage locations in the logistics center at KBK.

the system, PSiWms determines the corresponding storage bins. Incoming goods that are urgently needed in production are entered directly

“For us, the focus during system selection was on conflict-free communication between ERP and WMS as well as reliable long-term IT support for our warehouse processes.”

Gerhard Drews, IT Manager at KBK

and routed through to the workstation via a bypass using cross docking, so that there is no need for storage.

SLS Transport Control for route-optimized forklift activities

Storage and retrieval of full pallets is carried out with a semi-automatic narrow-aisle stacker from Jungheinrich. For forklift-based transports, the integrated forklift guidance system (SLS) Transport Control in

PSiWms ensures route-optimized forklift activities in cooperation with a downstream material flow computer with the Jungheinrich Logistics Interface. In addition, the warehouse management system uses radio data transmission to control two- or three-stage manual picking for material supply to the assembly stations. In the production hall, eleven assembly stations are to be supplied with separate deliveries in different combinations.

Fulfilled requirements without any problems

Each month, the employees in the KBK logistics center pick around 6000 outgoing goods items for production supply.

PSiWms thus offers further capacity reserves with a WMS performance of around 70 percent. “For us, the focus during system selec-

tion was on conflict-free communication between ERP and WMS as well as long-term reliable IT support for our warehouse processes,” Drews sums up. “In the good three and a half years since implementation, PSiWms has been able to meet these requirements without any problems.”

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Automated Qualitative Labeling with Qualicision AI

As part of the Qualicision AI technology, Qualitative Labeling prepares raw business process data for machine learning methods. For this purpose, data that can be directly measured in the business processes is qualitatively evaluated against the background of key performance indicators (KPIs) and interactions on this data are analyzed. Thus, an automated algorithmic bridge is created between the unprocessed raw business process data and artificial intelligence (AI) methods, which decisively simplifies and automates the resource-intensive process of manual data analysis for labeling data.

Qualitative Labeling is a machine learning technique based on the self-detection of KPI goal conflicts and KPI goal inconsistencies in business processes by evaluating business process data using Extended Fuzzy Logic and special clustering methods. KPI goal conflict analysis helps to automatically classify business process data in such a way that interactions are derived from raw data, allowing AI methods to make further use of the data labeled in this automated way.

Qualitative Labeling as part of the PSI framework for Industrial Artificial Intelligence

The automated derivation of qualitative labels is so important for the application of AI methods to business process data because business process data changes continuously with the dynamics of business processes. Unlike applications such as image recognition or speech processing, where data patterns once labeled remain static, the patterns to be labeled in business process data are dynamic and ever-changing in structure, such as continuously changing order mixes and process states.

The input to the software consists of two main components: First, data

streams of the business process to be analyzed are recorded and automatically converted into time series using time stamps. Secondly, together with those responsible for the business process, KPIs are agreed on the basis of which the business process in question is to be analyzed. For this purpose, Qualicision AI labeling functions (based on Extended Fuzzy Logic and the knowledge of the process owner) differentiate the KPIs into desired $[0;1]$ and undesired $[0;-1]$ value ranges.

Creation of time series from which positive and negative interactions between KPIs can be learned

If, for example, the capacity utilization of a plant in a manufacturing company is considered as a KPI, a percentage value greater than 85 percent can be defined as desirable and positive for the capacity utilization. Values below this, on the other hand, are negative and can be regarded as increasingly unfavorable the further they deviate downwards from the minimum goal value of 85 percent. If such data streams and the associated KPIs are time-stamped along the value chain of the business process, directly evaluable time series are created from which positive and negative interactions between the KPIs can be

learned. These can be made available to the process owner in a form that is understandable to humans and algorithmically prepared as labeled data for AI algorithms.

Application of automated Qualitative Labeling

For automated condition assessment and anomaly detection, Qualicision AI-distrotec (distribution based anomaly detection) is used as a method based on Qualicision AI technology and distribution based labeling capabilities. A Qualicision AI-distrotec model consists of a set of labeling functions that evaluate the normality of individual variables and their combinations. A value of 1 means that this value is most common and a value of -1 means that this value is highly abnormal and did not occur in the training dataset.

Stand-alone AI assistance system to detect anomalies

Then, the Qualicision AI kernel considers an overall result that is produced by the Qualicision AI interactions matrix. The user specifies which values and combinations of values to monitor and specifies a time range for training. The distribution function is then learned using Kernel Density Estimate over this time period and scaled to the value range of $[-1;1]$ as a labeling

function. The method is used in reinforcement learning via control goals to teach the agent to keep the network state in the normal range and avoid extreme values, and as a stand-alone AI assistance system to detect anomalies that can lead to or already present faults early on and identify possible causes.

Easy access to Qualitative Labeling of business process data

From the customer's perspective, it is therefore very easy to get started

and suitable qualitative labels can be added to the data. The labeled business process data created in this way is much easier to use for AI procedures.

Improvement of transparency, traceability and explainability of the AI results

The calculated qualitative labels also improve the transparency, traceability and explainability of the AI results (see Figure 1). In many cases, they are used to in-

the introduction of further AI functionalities.

Use in PSI tools and in industrial customer processes

Qualitative Labeling is an integral part of the AI stack Qualicision AI which is in use in almost all PSI software products. Accordingly, customer processes in both the energy and the production sectors benefit here. Decision support in process management, optimization of production processes, optimization of maintenance pro-

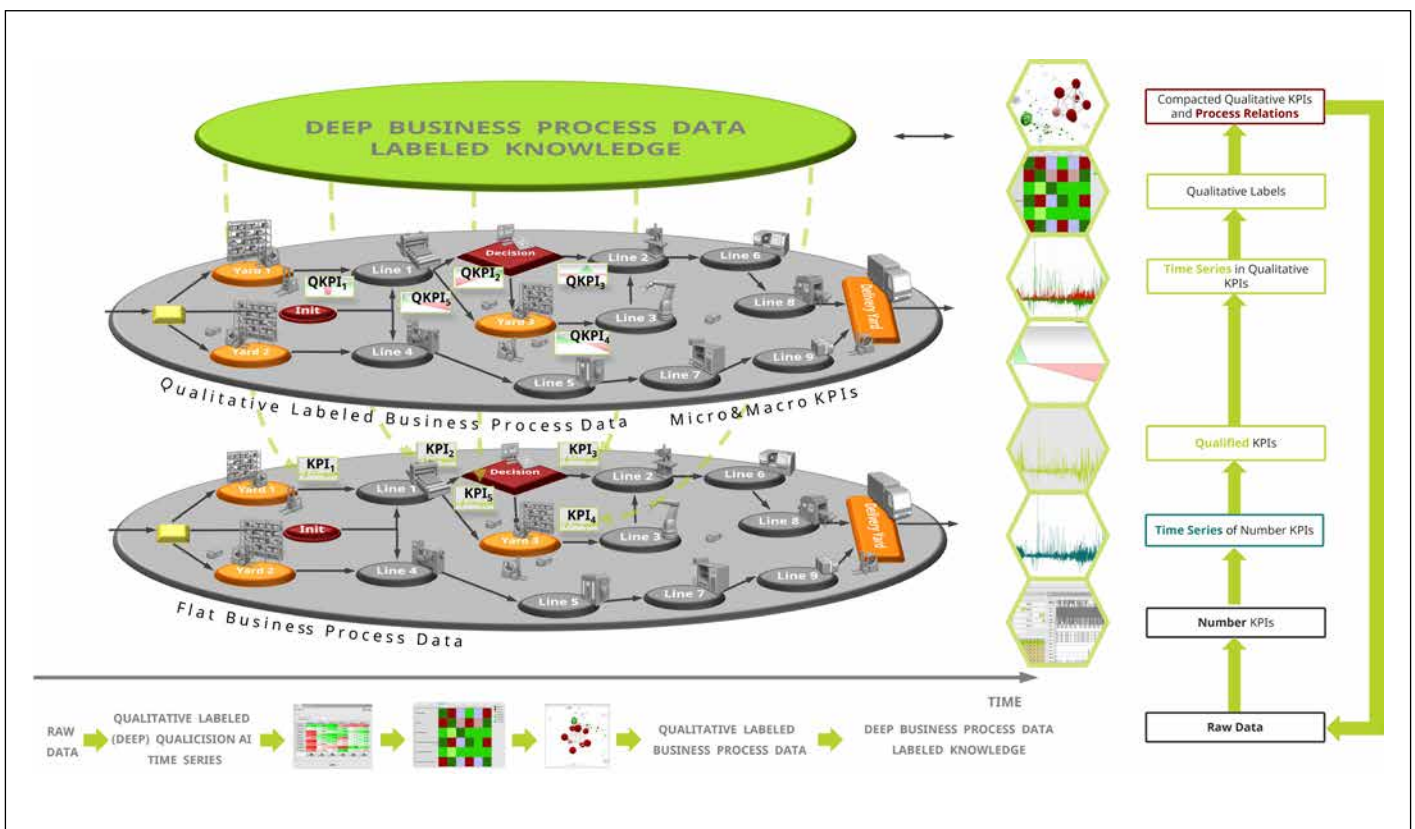


Figure 1: Level model Qualitative Labeling with Qualicision AI.

using the process with the help of the framework. If qualitatively labeled data is to be generated in a business process, it is first necessary to define the key performance indicators and criteria (KPIs) according to which the quality of the respective business process is to be evaluated. Once this has been done, raw business process data can be evaluated with regard to the KPIs

and produce self-adjustment of optimization algorithms, resulting in learning optimization procedures from classical optimizations. Due to the generality of the procedure, any existing PSI software based on the treatment of KPIs can be used as a KPI labeling engine. Thus, any existing PSI application can be extended with self-learning labeling capabilities that systematically prepare for

processes and automated energy trading are some of the integrations in industry-specific PSI tools with direct use in industrial customer processes.

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A Good Choice: ERP for High-Tech Manufacturing

PSIpenta was awarded the “ERP System of the Year 2022” in the category “High-tech manufacturing”. Production manager spoke with Business Development Manager Karl Tröger about why it is also a good choice for companies in precisely this industry.

Mr. Tröger, you were mainly responsible for the application for the “ERP System of the Year”. After last year’s award in the category “High-Variant Series Production”, PSI has now also won in the category “High-Tech Manufacturing”. And we know that you can best explain why the ERP solution PSIpenta is also a very good choice for high-tech manufacturers. Therefore, let’s first take a look at the industry and its special features. What are the challenges?

Karl Tröger: The key factor is the fact that this market is in global competition. As a result, cost pressure is extraordinarily high, which challenges companies to globalize both their production and their procurement. Very early in the engineering process, for example, those responsible must assess the impact of design decisions and design and implement suitable implementation strategies.

In other words: the decision in favor of a particular production site and suitable suppliers is highly significant?

Karl Tröger: That is precisely the case. For this reason, companies very often operate at different locations. Some have globally distributed plants, in other cases administration and production are located at different sites. This results in a wide variety of constellations. However, the processes and relationships between the sites, especially between the manufacturing plants and local procurement, must function without media discontinuity. Only this will enable the companies to work with uniform data. The configurable multi-plant control in PSIpenta/ERP, the Multisite module, offers everything that is needed for this.

Internationality goes hand in hand with other special features. Is there any challenge for which an ERP system can also tip the scales?

Karl Tröger: In the recent past, especially in the high-tech environment, the effects of uncertainties in the procurement and sales markets became evident. A fast response time in the event of deviations or disruptions in all value-creating processes—that’s what counts. And the ERP



Karl Tröger (center) at the award ceremony.

system naturally plays an essential role here. With our ERP modules for Adaptive Manufacturing Control and Advanced Scheduling and Monitoring, as well as the integration capability of AI methods, companies have several powerful additions available to optimize their production planning—even while balancing competing goals.

Is high-tech also always associated with high requirements for product traceability?

Karl Tröger: Genealogy—and we have to add quality management integrated into the manufacturing process here—are, you are absolutely right, also typical for the production of cutting-edge technology. Not only the end products alone must be traceable, but also the production or procurement of assemblies. PSIpenta ensures these requirements through cross-plant batch and serial number management.

Does Multisite play a significant role for cross-plant requirements?

Karl Tröger: Yes, the cross-plant approach is even essential in this context. It allows the specialization of individual sites on certain technologies to be mapped without losing the coherence of the batches or serial numbers.

We have now mentioned two typical requirements of the industry. Let’s complete the top three: What is the third

challenge of high-tech manufacturing and its mapping in PSIPenta/ERP that can be highlighted?

Karl Tröger: Let me describe it from the IT point of view first: It is the openness or integration capability of the overall system on which high-tech companies depend. In technical jargon, we speak of “built-in integration architecture”. This architecture ensures that hardware components such as sensors, actuators and controls as well as complete software systems or parts thereof can be seamlessly integrated into the ERP system. This connection is created by the middleware PSIBus. And it can do a bit more: In addition to connecting data and events with the software systems and user interfaces, it also contains a workflow engine for controlling the processes.

Could you explain briefly what is behind the workflow engine?

Karl Tröger: As in many other industries, despite standards there are some individual processes that companies want or need to maintain. Instead of having to program these processes at great expense, they can be modeled easily and quickly thanks to the Workflow Engine and by means of Business Process Management Notation (BPMN 2.0). Companies are thus considerably more flexible and faster. Especially in competitive industries, agility has long been a competitive criterion.

Speaking of competition, could you summarize in one sentence what you think is important for high-tech manufacturers?

Karl Tröger: Challenge accepted: Successful order processing in high-tech manufacturing requires stable processes, which presuppose complete horizontal and vertical integration—across all sites, of course.

“ *A fast response time in the event of deviations or disruptions in all value-creating processes—that’s what counts. And the ERP system naturally plays an essential role here.* ”

**Karl Tröger, Business Development Manager,
PSI Automotive & Industry**

Thank you very much for your time and the exciting insights into an industry where stability is just as important as agility. 🔄

Read the full interview on our blog (German only).
Just scan the QR code.



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All Product History Transparently Accessible

Metal consumers are interested in the properties of the products they are about to buy. Blockchain technology provides these details and creates transparency. This transparency could expose confidential information about production processes that could harm the company's competitiveness. By combining blockchain technology with zero-knowledge proofs, metal producers can successfully provide this information without revealing confidential details about their production processes.

Imagine blockchain technology being a notary that certifies all products along the supply chain, ensures that (intermediate) products are made from certified materials, inspects the production processes and ensures that all quality claims are correct. With the notary's presence throughout the entire supply chain, from the ore in the mountain to the finished car, the customer is convinced the car was produced according to the information provided in the certificates. In this manner, blockchain technology enables various properties of metals products to be certifiable. Furthermore, digital iden-

tities prevent the possibility of impersonation.

Zero-knowledge proofs: Kill 3 birds with one stone

While metals producers want to build trust by publishing product information, they also need to keep some details about the production processes private for competitive reasons. These requirements cannot be solved with blockchain technology alone.

To help, zero-knowledge proofs create a link between confidential production details and the product information asked for by the

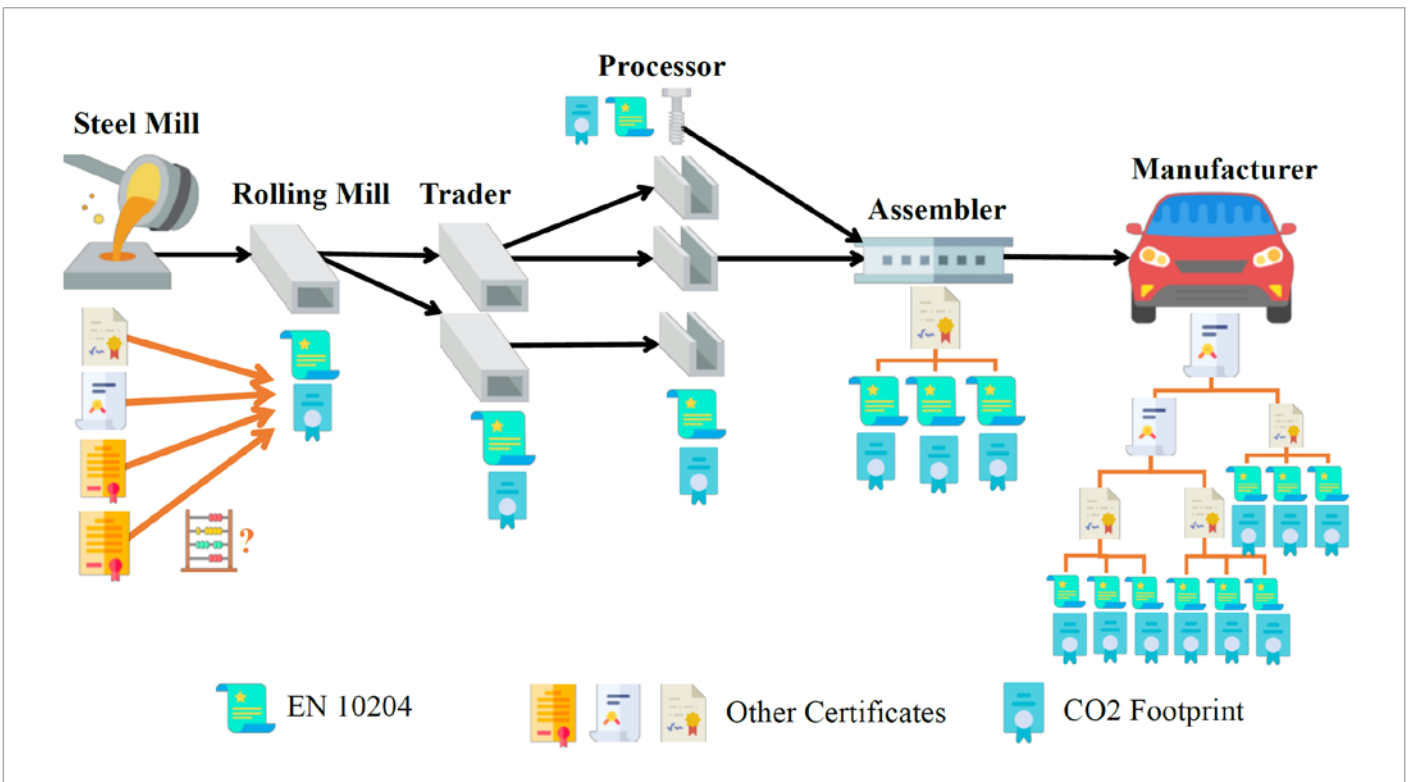
customer. By combining blockchain technology with zero-knowledge proofs, metals producers can both create trust and transparency while withholding confidential details. 🔄

Would you like to read the entire article in the blog? Just scan the QR code.



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Certificates point to their predecessors and implicitly create a certification tree.

On the Way to Renewable Energies

Green steel and artificial intelligence were the main buzzwords among exhibitors and visitors at METEC 2023 in Düsseldorf. METEC is the world's leading trade fair for metallurgical technology. PSI Metals was also there and presented itself with the seminal message: "Production Management Solutions Today for Generations to Come".

This year's presentation at METEC reflected PSI Metals' mission to always provide metals producers with innovative and sustainable production management solutions. The main attractions of the PSI Metals booth were the Energy Showcase, the PSI App Store and the PSI Metals 2030 strategy.

The heart of the booth— jumping for renewable energy

Jumping on the kinetic floor tiles simulated the wind to turn the turbines of a virtual offshore wind farm. Whereby the offshore wind farm symbolized one of the most important sources of renewable energy. The energy profile generated




PSI Metals booth at METEC 2023.



METEC visitors jump on the kinetic floor tiles to simulate green power generation and match steel production to available energy with solutions from PSI.

within about 15 seconds was converted into a wind energy forecast for the next hours and transmitted to the PSImetals Online Heat Scheduler (OHS). The PSImetals OHS represented a hybrid steel mill combining both converter furnaces and electric arc furnaces in one facility. The wind farm then supplies the hybrid steel mill's electric arc furnace.

The integration of meltshop planning, energy forecasting and finally the online connection to energy trading services on one platform is a vision-

ary topic especially in the context of digital transformation. In the end, METEC visitors agreed that the enormous demand for green electricity, which fluctuates especially in terms of availability and price, must be handled differently than is the case today. 

Would you like to read the entire article in the blog? Just scan the QR code!



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Agile Implementation Method Saves Costs and Time

The international distributor of sportswear and equipment Sportisimo s. r. o. is launching the Warehouse Management System PSIWms and the Material Flow Control PSImfc from PSI. With a focus on the agile implementation method, the order was placed directly via the PSI App Store.

PSIwms includes extensive functions for handling the logistics processes in the Sportisimo's distribution center located in Ostrava, Czech Republic. It takes into account the specifics of both the e-commerce market and stationary retail. The preconfigured Omnichannel release enables efficient implementation and flexible customization and will support the Omnichannel processes as well as a proprietary system. The launch of the first, pilot phase was scheduled for January 2023 and has been completed on time.

PSI Polska is also responsible for the delivery of the Material Flow Control System PSImfc to manage the miniload automated small parts warehouse with 11 aisles and with a capacity of over 300 000 cartons and over 6000 meters of conveying sys-



Logistic center of Sportisimo.

meet our business needs", explains Paweł Waler Supply Chain Director at Sportisimo. He adds: "PSI convinced us with the implementation time and the leap in efficiency in all logistics processes. In addition, the agile implementation method offers cost distribution over time as well as flexible software development.

cluding automation interfaces. In the first quarter of 2023 PSI has already delivered the solution for the miniload and Pick Tower and we are really glad about the results".

Sportisimo is a European retail company and one of the leading distributors of sports apparel and equipment from the world's most popular sports brands. In addition to online sales in 25 countries, the retailer runs over 200 brick-and-mortar stores in the Czech Republic, Slovakia and Romania.

With over 400 employees in Poland, PSI Polska already counts renowned retail chain companies such as LPP, CCC and Empik among its customers. Moreover, PSIWms replaced the previous warehousing systems at Empik, CCC and Asmet. [👁](#)

PSI Logistics GmbH

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“PSI convinced us with the implementation time and the leap in efficiency in all logistics processes. In addition, the agile implementation method offers cost distribution over time as well as flexible software development.

Paweł Waler, Supply Chain Director at Sportisimo

tems. The project also includes the development of complex batching needed to orchestrate automation of picking process.

“With the solution from PSI, we have the opportunity to optimize our automated warehouse and

Aliaksei Siparau, Board advisor and former CFO/COO complements at Sportisimo: “Right from the beginning of the project, PSI was able to deliver the running real prototypes which we could use for testing to speed up production deployment significantly. All lightning fast, in-

Improved Quality and Harmonized IT Landscape

At the Brazilian steel producer Villares Metals, the new production management software PSImetals 5.23 for the Multi Line Hot Rolling Mill went already live in November 2022. The PSI Metals' long-term customer decided to replace their existing solution with PSImetals in order to improve quality control, harmonize the IT landscape and reduce operational failures.


PSI has collaborated with Villares Metals since 2009 for various implementations. This time, Villares decided to expand the PSImetals scope into the downstream areas to unify the Melt Shop MES and the Hot Rolling Area MES in the same software platform. The implemented software covers production and quality tracking, line scheduling, material tracking with level 1 integration and SAP integration.

To ensure the success of the project, a team of experts from PSI Metals Brazil supported the Brazilian steelmaker in their local Portuguese language, interacting with the key users to understand their needs and to configure PSImetals to fulfill their requirements.

“ The biggest achievement with the new solution was the possibility to have control and standardization of processes.

Carlos Tempesta, Digital Transformation Manager at Villares Metals

“It was a very interesting experience,” says Mr. Carlos Tempesta, Digital Transformation Manager at Villares Metals. He further adds: “The biggest achievement with the new solution was the possibility to have control and standardization of processes. PSI Metals experts are professionals with great knowledge about steelmaking processes, which made the work much easier and avoided many problems during the project. They contributed a lot by suggesting improvements that even we did not know how to execute.”

Villares Metals is part of the High Performance Metals Division of voestalpine Group, and is the largest Latin American producer of non-flat high-alloyed steels and Ni-based alloys, which, amongst other areas, are used by automotive and aerospace industries, and the energy sector. 

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PSImetals UserGroups - Save the date!

Product Solutions Today For Generations To Come

WHAT// PSImetals UserGroup Americas
WHEN// 11 - 12 September 2023
WHERE// PSI Office Pittsburgh, PA | USA

WHAT// PSImetals UserGroup & Release Days
WHEN// 29 - 30 November 2023
WHERE// Düsseldorf, Germany



Increasing Demand for Industrial AI Solutions

At this year's Hannover Messe, the PSI Group successfully presented its intelligent software products and AI-based applications for optimized and sustainable production and energy supply. In addition, the advanced presentations of the PSI App Store and the new Collaboration Space for customers and partners attracted great interest.

Based on the motto "Industrial Software with Built-in Qualicision AI", numerous concrete sales contacts were generated at the trade fair, underlining the growing interest in industrial AI-based technology from PSI.

Via the PSI App Store, orders worth EUR 1 million were placed for "PSI Software with Built-in Qualicision AI" with well-known customers from the automotive and technology sectors in the first quarter of this year.

wide working group. The Qualicision AI software for decision support and optimization has been integrated into a large number of established PSI products for over two decades and has also been successfully used productively in customer projects.




The PSI booth at the Hannover Messe 2023.

Sustainable production and energy supply

The software solutions increasingly support companies in the implementation of smart energy infrastructures and in the decarbonization of production.

AI as a key technology in the industry

PSI contributes significantly to pushing the use of artificial intelligence (AI) as a key technology in the industry. Therefore, PSI is also bundling its AI expertise in a group-

Moreover, PSI participates in numerous AI-based research projects. 

PSI Software AG

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Automated Production Processes

PSI Automotive & Industry has been commissioned by the Austrian PENN GmbH to deliver the ERP system PSIpenta with comprehensive modules. These will enable the PENN Group to automate their production processes to an even greater extent and thus expand their competitiveness.

With around 750 employees at four locations in Austria and the Czech Republic, the PENN Group specializes in the production of prefabricated steel parts for the construction and automotive industries. Initially, the Austrian sites, where the company employs about 200 persons in the area of automation, will be converted to the PSI software.

Based on the ERP system PSIpenta, the modules Warehouse Management, Quality and Service Management, Working Capital Management, EDI Purchasing and Sales as well as Supply Chain Management will be implemented in the first project phase. In addition to Production and Machine Data Collection, Industrial Apps, Advanced Scheduling & Monitoring, Business Intelligence, various interfaces will be added.

After a careful review of various ERP systems, PENN GmbH decided in favor of PSIpenta because it meets



PENN headquarter.

the specific business requirements the best. In addition to the powerful functions, the scalability and flexibility of the system will optimize business processes and increase efficiency.

With the PENN Group, based in Senftenberg-Imbach, PSI Automotive & Industry gains a leading and renowned company and can thus expand its existing customer base in Austria. 🌐

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The PSI blog features more interesting and in-depth articles on production, logistics, AI, energy and mobility.



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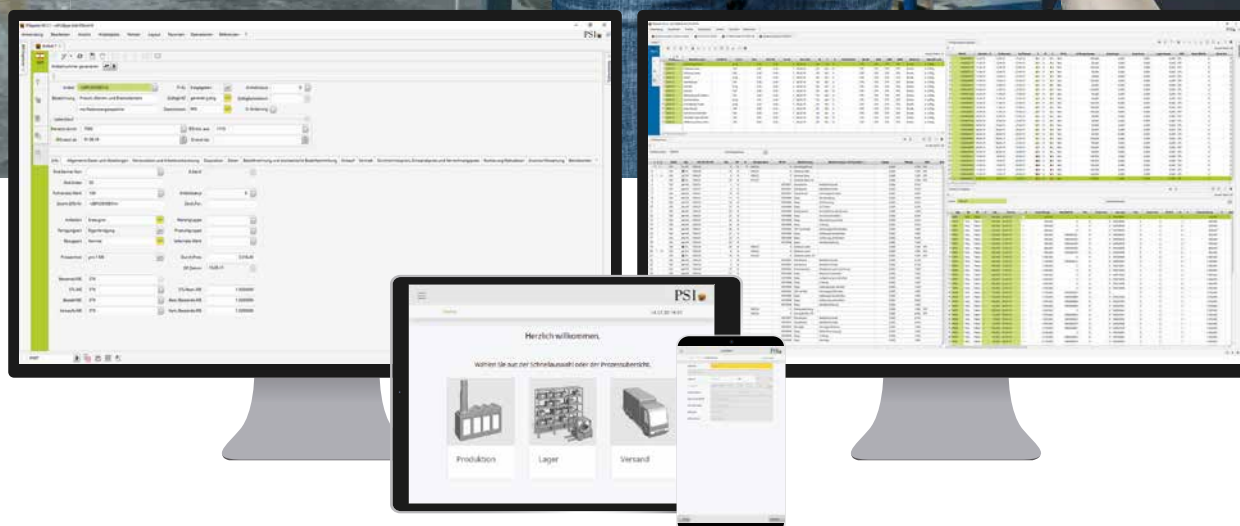
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